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(54) COMPOUND SEMICONDUCTOR CRYSTAL GROWTH AND COMPOUND SEMICONDUCTOR DEVICE

(57)Abstract:

PURPOSE: To produce a compound semiconductor layer having hetero interfaces so as to acquire such steep hetero interfaces as to have a precision of monatomic layer, by feeding, using the atomic layer epitaxy technique, a semiconductor substrate with the feedstocks of elements constituting the title compound semiconductor in high flow rate at low-growth temperature and low-growth pressure.

CONSTITUTION: Using the atomic layer epitaxy technique, a semiconductor substrate is alternately fed with the feedstocks of elements constituting the objective compound semiconductor to effect monatomic layer growth of the superlattice structure layer of $(GaAs)m(GaP)n$, $(GaAs)m(GaAsP)n$, $(GaAsP)m(GaP)n$ or $(GaAs)l(GaAsP)m(GaP)n$ (l, m and n are each positive integer). It is preferable that the feedstocks for Ga, As and P be trimethylgarium, arsine and phosphine, respectively, and said semiconductor substrate be fed with the trimethylgarium in high flow speed at low-growth temperature and pressure to effect monatomic layer growth through decomposition reaction on said substrate's surface.

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